

CONTAMINANTS TO WHICH CHILDREN MAY BE PARTICULARLY SENSITIVE

Contaminant and Drinking Water Standard	Likely Sources of the Contaminant in Drinking Water	Ways that Children are Exposed Other Than Drinking Water	Children's Potential Health Effects from Ingesting the Contaminant in Water at Levels Above EPA Drinking Water Standards	What To Do If You Have High Levels in Your Drinking Water?
Nitrate¹				
10 parts per million Nitrite 1 part per million	Runoff from fertilizer use; leaching from septic tanks, cesspools, sewage; erosion of natural deposits	Infants most often get blue baby syndrome when they are already sick, consume food that is high in nitrates, such as spinach, broccoli and cured meats, and drink formula mixed with water that is high in nitrates.	"Blue baby syndrome" in infants under six months — life threatening without immediate medical attention. Symptoms: Infant looks blue and has shortness of breath.	Do NOT boil water to attempt to reduce nitrates. Boiling water increases nitrate concentration and the potential risk. Talk to your health care provider about alternatives to using boiled water in baby formula.
Lead				
Public water systems must sample tap water from a percentage of sites with lead pipes or copper pipes with lead in solder and/or service lines. Treatment steps must be taken if lead levels exceed 0.015 parts per million in at least 10 percent of samples, or if copper levels exceed 1.3 parts per million.	Corrosion of household plumbing systems ² ; erosion of natural deposits.	Paint chips and dust from lead paint in old buildings are the primary routes of children's exposure to lead.	For both infants and children, continuous exposure to high levels of lead may lead to delays in physical or mental development. Children could show slight deficits in attention span and learning abilities.	Do NOT boil the water to attempt to reduce lead. Flush your pipes by running the water before using it for drinking or cooking and use only water from the cold water tap for cooking, drinking, and preparing baby formula. Allow the water to run until it's cold (this water can be used for plants to reduce waste). If you have high lead levels, talk to your health care provider about alternatives to using boiled water in baby formula.
Copper				
See standard for lead, above.	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.	Children may be exposed to copper in food, but not usually at high enough levels to pose a health risk. If food is improperly stored in a copper container, ingestion may lead to nausea or vomiting.	High levels of copper in drinking water may cause nausea or vomiting in children.	Same procedure as lead, above.
Microbial Contaminants³				
Standards vary by contaminant. For details, see www.epa.gov/safewater/mcl.html or call EPA's Safe Drinking Water Hotline, (800) 426-4791.	Human and animal fecal waste (e.g., animal feedlots); leaking from septic systems and cesspools.	Food; unsanitary diaper changing practices; person-to-person contact.	Exposure may cause gastro-intestinal problems. Those with weakened immune systems are most vulnerable. Diarrhea and vomiting may cause children to become dehydrated more quickly than adults. However, in most healthy children, problems are temporary. Contact your health care provider and be sure children drink enough water (from a safe source) to prevent dehydration.	Boil your water vigorously for one minute before using it. Alternatively, purchase bottled water treated by distillation or reverse osmosis.
Disinfectants and Disinfection Byproducts (DBPs)⁴				
Total Trihalomethanes: 0.10 parts per million. In 2002, more stringent standards will be enforceable. See footnote.	While disinfectants are effective in controlling many microorganisms, they react with matter in water to form disinfection byproducts. Unchlorinated private well water is unlikely to contain any DBPs.	Not known.	Varies depending on the DBP. Some epidemiological studies may indicate a link between certain DBPs and a slight increased risk of reproductive and developmental effects. For a new regulation that will be implemented in 2002, EPA has evaluated the environmental health or safety effects of DBPs on children and concluded that the public health goals are protective.	Drinking lots of water during pregnancy is important. If you are notified of a violation, follow instructions from your public water system. For personal health advice, you should contact your health care provider regarding using bottled water.

Notes

¹ Standards for nitrate and nitrite are based on annual averages of 1–4 samples. Requirements differ among systems.

² Lead: It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested. To locate a state certified laboratory, see <http://www.epa.gov/safewater/faq/sco.html>, or call the Safe Drinking Water Hotline at (800) 426-4791.

³ Microbial Contaminants: In 1998, EPA established the Interim Enhanced Surface Water Treatment Rule, which strengthens control over microbial contaminants, including the pathogen, *Cryptosporidium*. By 2002, public water systems using surface water (or ground water under the direct influence of surface water) and serving more than 10,000 people must comply with the rule. States must adopt the new standards by 2001. EPA is conducting research in several areas including: analyzing occurrence data on microbial contaminants at more than 500 utilities nationwide; collecting data on the incidence of pathogens in water and the effectiveness of techniques for removing pathogens to understand potential exposure of adults and children; a variety of studies on incidence of diarrhea in adults and children and its possible association with drinking water. This research will be used for determining priorities for the drinking water program, including guidance, future standards and reevaluation of existing standards.

⁴ Disinfectants and Disinfection Byproducts: In 1998, EPA established the Stage 1 Disinfectants and Disinfection Byproducts Rule, which strengthened protection from DBPs. In 2002, new standards, all listed in parts per million, will be enforceable: Disinfectant Residuals: *Chlorine* – 4.0; *Chloramine* – 4.0; *Chlorine Dioxide* – 0.8. Disinfection Byproducts: *Total Trihalomethanes* – 0.080; *Haloacetic Acids* – 0.060; *Chlorite* – 1.0; *Bromate* – 0.010. EPA is conducting research in several areas including: analyzing occurrence data on DBP levels at more than 500 utilities nationwide; examining factors that contribute to the formation of DBPs; evaluating the effectiveness of treatment technologies to remove materials from water that react with chlorine to form DBPs; and conducting health effects research to better understand the potential risk associated with exposure. Due to the length of time required to conduct large scale epidemiology studies, the results of some new research will not be completed until after the 2002 statutory deadline for the Stage 2 Disinfectants and Disinfection Byproducts Rule. However, a number of these important studies that are evaluating potential risks to pregnant women will be completed in time for the rulemaking.

Information for Private Well Owners

Private water supplies are not regulated by EPA, although some states and municipalities have standards that apply to these wells. If you have a private well, you are responsible for testing your water to make sure it is safe. This is especially important in areas where homes and nearby businesses are on septic systems. Since many contaminants are colorless and odorless, testing is the only way to determine whether your well water is safe to drink. EPA drinking water standards and health information are good guidelines for you in protecting your own drinking water.

Wells should be tested annually for nitrate and coliform bacteria to detect contamination problems early. Test more frequently and for more potential contaminants, such as radon, pesticides or industrial chemicals if you suspect a problem. Contact your state laboratory certification office for a listing of certified drinking water laboratories in your state. In addition, you can help protect your water supply by carefully managing activities near the water source. The organization, Farm**A**Syst/ Home**A**Syst, (608) 262-0024, provides fact sheets and worksheets to help farmers and rural residents assess pollution risks and develop management plans geared towards their circumstances.

The Safe Drinking Water Hotline, (800) 426-4791, can provide you with the phone numbers for these organizations. Resources are also available on the Internet:

- State Certification Officers,
www.epa.gov/safewater/faq/sco.html
- Farm**A**Syst/ Home**A**Syst,
www.wisc.edu/farmasyst/
- Wellhead Protection Program,
www.epa.gov/safewater/protect.html